NSNFP National Spent Nuclear Fuel Program	MANAGEMENT OF THE SPENT FUEL DATABASE	Doc. No.: PSO 19.02 Revision: 0 Eff. Date: 04-23-03 Page: 1 of 11 DAR No.: NSNF-433

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I. PURPOSE AND SCOPE

This procedure describes the controls used to maintain the Spent Fuel Database (SFD) information and distribute information from the SFD. The SFD is composed of available technical information related to the U.S. Department of Energy (DOE) spent nuclear fuel (SNF) inventory.

The SFD is intended primarily for SNF scoping, planning, and programmatic decision-making by the National Spent Nuclear Fuel Program (NSNFP) and other recipients of the information.

II. SUMMARY

This SFD software configuration has been previously baselined by site personnel and has a controlled software plan in the Document Control Center. This procedure addresses the process and controls used to collect, update, and check technical information entries included in the SFD. The procedure addresses developing and checking queries to provide responses from requesters for specific information residing in the SFD. The procedure also addresses controls for electronically formatted information provided to requesters.

III. PROCEDURE

A. Core Software Change Control

PSO Technical Staff	1.	Identify changes to the Core Software for the SFD when a new feature within the SFD is desired or the current core software ceases to function properly.
PSO Technical Lead	2.	Consider the request that the SFD Core Software be modified to either correct a deficiency or add a new feature to the core software.
PSO Technical Staff	3.	Complete the Electronic Change Log and send it to the Software Engineer for the SFD according to PLN-109, Configuration Management of Internally Developed Software Applications.
	4.	Report to the PSO Technical Lead with an estimate of the work scope and cost for the software and documentation changes.
PSO Technical Lead	5.	Determine if the changes should be implanted and authorize change to the Functional and Operational Requirements (F&OR).
PSO Technical Staff	6.	Change and issue the F&OR as necessary using NSNFP procedure PMP 6.01, Review and Approval of Internal Documents.

PSO Technical Staff

7. Modify the Software Requirements Specification (SRS) and the Software Design Description (SDD), as necessary, to reflect the approved changes. Make changes according to PMP 6.01.

8. Modify the software in accordance with approved changes.

9. Test the new version of the software on a *clean platform* (see glossary).

10. If the software does not perform as required, go back to Step III. A.7.

11. If the software does perform as required, place the new version on the Local Area Network.

12. Evaluate the new version of the SFD on his/her computer.

    a. If not satisfied that the new version provides the features or corrections desired, go back to Step III. A.7.

    b. If satisfied, report to the Technical Lead that the changes have been made and the software performs as required.

PSO Technical Lead

13. Evaluate the new version of the SFD.

    a. If not satisfied with the new version, go back to Step III. A.7.

    b. If satisfied with the new version, authorize release of the SFD.

PSO Technical Staff

14. Assign a new version number to the SFD.

B. Updating the SFD Information

PSO Technical Staff

1. Initiate an update to the SFD information when one of the following conditions occurs.

    a. An error is discovered in the existing SFD information

    b. More complete information is found

    c. Updates in inventory are provided

2. Coordinate with DOE SNF Sites to obtain available SNF technical information and changes thereto.

    a. When changes in inventory are known or suspected, send a request for an updated SNF inventory to the applicable SNF site point of contact.

PSO Technical Staff

b. As necessary, request clarifications to any information received. The request can be made via formal letter, e-mail, or documented telephone conversation.

3. Retain a working copy of the information and clarifications provided and transmit a record copy to the Document Control Center for retention at file location 1360.2.

4. As needed, create an Excel spreadsheet to allow sorting of the information by physical or chemical characteristics and to facilitate placing the information in the SFD.

   a. If the DOE SNF Site response has information about individual fuel units that are of a similar type (heavy metal content or burnup as an example), create (unless already provided) an Excel spreadsheet using the response to determine the average values for individual fuel units and the total for the record.

   b. Save Excel spreadsheets on a network drive for reference purposes.

5. Open the appropriate SFD record in the edit mode and enter the updated information.

   a. For SFD key information fields (identified with a blue dot), provide a justification for the change. Include in the justification: who made the change, the date the change was made, the old value, and the new value.

   b. Enter the name of the new spreadsheet created for the records in the table identified as "Spreadsheets" within the access data of the SFD.

   c. Prior to saving each changed SFD record, update the Source Code/Reference window as necessary to indicate the source of the data and the file location in the NSNFP Document Control Center.

   d. Attach the spreadsheet to the SFD record by selecting it from the general screen before saving the SFD record.

   e. Ensure an Excel icon appears in the tool bar indicating the spreadsheet is attached and available for review from the SFD.

6. If the Source Code/Reference window is correct or has been corrected, then save the record and check the entered values against the applicable source document provided by the DOE SNF Site.

   a. If the entered values do not agree with the source document, go back to Step III. B.5.

PSO Technical Staff

7. If the entered values agree with the source document, prepare a spreadsheet created from the *Acceptance SFD* (see glossary) and send the spreadsheet to the point of contact where the source information was obtained to demonstrate the SFD has been updated.

8. Distribute new versions of the SFD as directed by the Technical Lead.

   a. Prior to release, save the latest information set and all updates in the SFD software. Include in this saved version the complete Transaction Log that is used to track changes.

   b. Include in the new version of the SFD a new version number, a date of release, and a blank Transaction Log to track changes in the next version of the SFD.

C. Developing Responses to Questions Using Queries within the SFD

PSO Technical Staff

1. Coordinate with the requester to determine the desired data fields to be included in the response.

2. If a request is made from an individual external to the PSO Technical Staff, request DOE-ID approval before proceeding with the query.

3. Create a new query or modify an existing query with the data fields as specified in the request and in the same order. Include in the query the value for the current value MTHM whether or not the requester asked for this information.

   a. Use only data from the *Production SFD* (see glossary) to export responses to questions.

   b. If the information is to be directly used for *NRC-licensed activities* (NLA; see glossary), proceed to Step III. C.4.

   c. If the information will not be used for NLA,

      (1) Run the query.

      (2) Run a similar query from the locator.

      (3) Compare the MTHM values and the number of records from the two queries.

      (4) If the results of the two queries are identical, proceed to Step III. C.10.

4. Prior to running the query, perform an independent check of the mathematical formulas used in building the query. Note in the SFD Verification Log who made the checks and when the checks were made.

PSO Technical Staff

5. If the checks of the mathematical formulas do not pass the independent check, go back to Step III. C.3.

6. Once the mathematical formulas pass the independent check, run the query and note the number of records involved and the total MTHM obtained in the SFD Verification Log.

7. Run a similar query in the locator from the Production side of the SFD. Include the same parameters as the query run from the raw data (i.e., location, management plans, irradiating reactor, SNF composition, storage configuration, standard canisters, SNM type, and grouping).

8. Note the number of records in the results and the value for total MTHM. If the values are not the same as obtained in the query run from the raw data go back to Step III. C.3.

9. Once the results are the same in both queries

   a. Save the query used and assign it a unique identifier for future reference and retrieval.

   b. Attach a copy of the SQL (Structured Query Language) statement from the query to the SFD Verification Log

   c. Ensure the identifier indicates the information use and the SFD version (i.e., License Application from Version 4.5).

   d. Document the results of both queries in the SFD Verification Log and transmit the record copy to the Document Control Center.

10. Go to Section D, Control of Electronic Information, to transfer the response to requester in electronic format.

D. Control of Electronic Information

PSO Technical Staff

1. To transfer information in electronic format, copy the results into Microsoft Excel.

2. If the information is used for NLA, go to Step III. D.4.

3. If the information is not used for NLA, furnish the Excel spreadsheet to the requester.

4. Add the "Checksum" feature to the Excel spreadsheet by entering an equation "=sum (then select numerical data by highlighting the area)."

PSO Technical Staff

5. Copy the exact value into a adjacent cell by doing a "copy" and then "paste special" and select from the popup window "Values." The same value should appear in the cell.

6. Set the decimal to four places to the right of the decimal.

7. Subtract the second cell value from the first—the value should read 0.0000.

8. Furnish the Excel spreadsheet to the requester.

9. Verify with the requester that the "Checksum" value equals 0.0000.

10. If the Checksum value does not equal 0.0000, go back to Step III. D.4 and use another method of furnishing the spreadsheet.

IV. REFERENCES

None.

V. DEFINITIONS

Terms appearing in italics followed by the notation "see glossary" are defined in the NSNFP Documents Manual Introduction and Glossary.

VI. ATTACHMENTS

A. SNF Verification Log—Template

VII. RECORDS

The following records generated as a result of this procedure require retention in accordance with the identified classification and NSNFP Program Management Procedure 17.01.

Lifetime

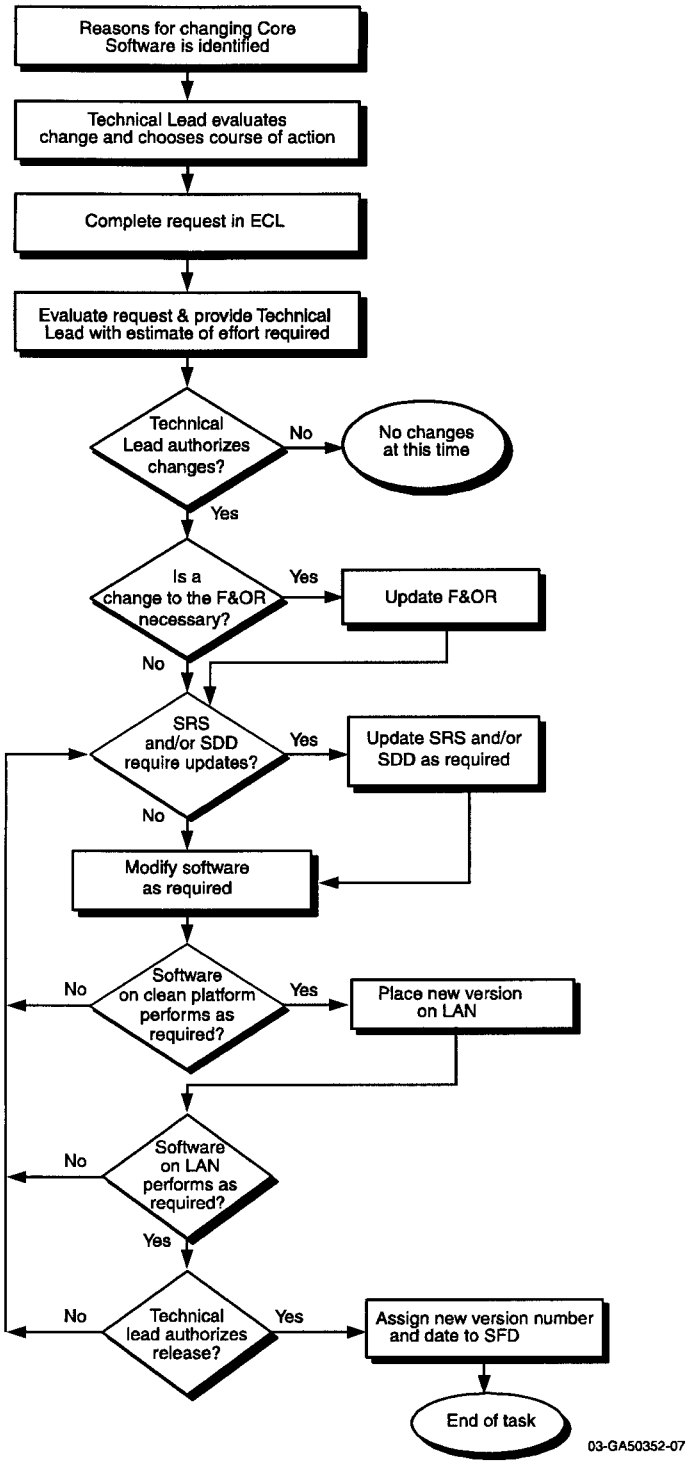
None.

Nonpermanent

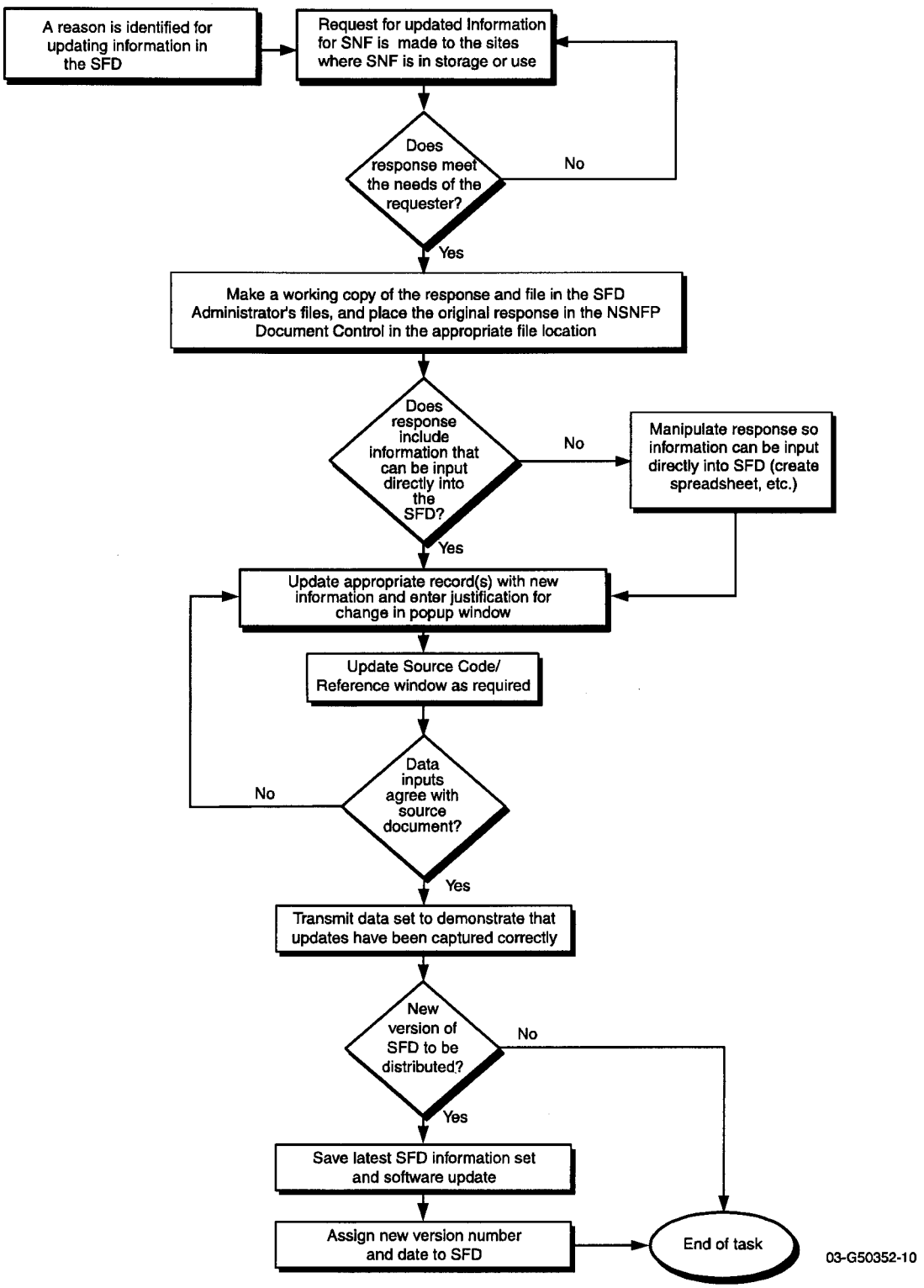
None.

VIII. PROCEDURE FLOW DIAGRAM

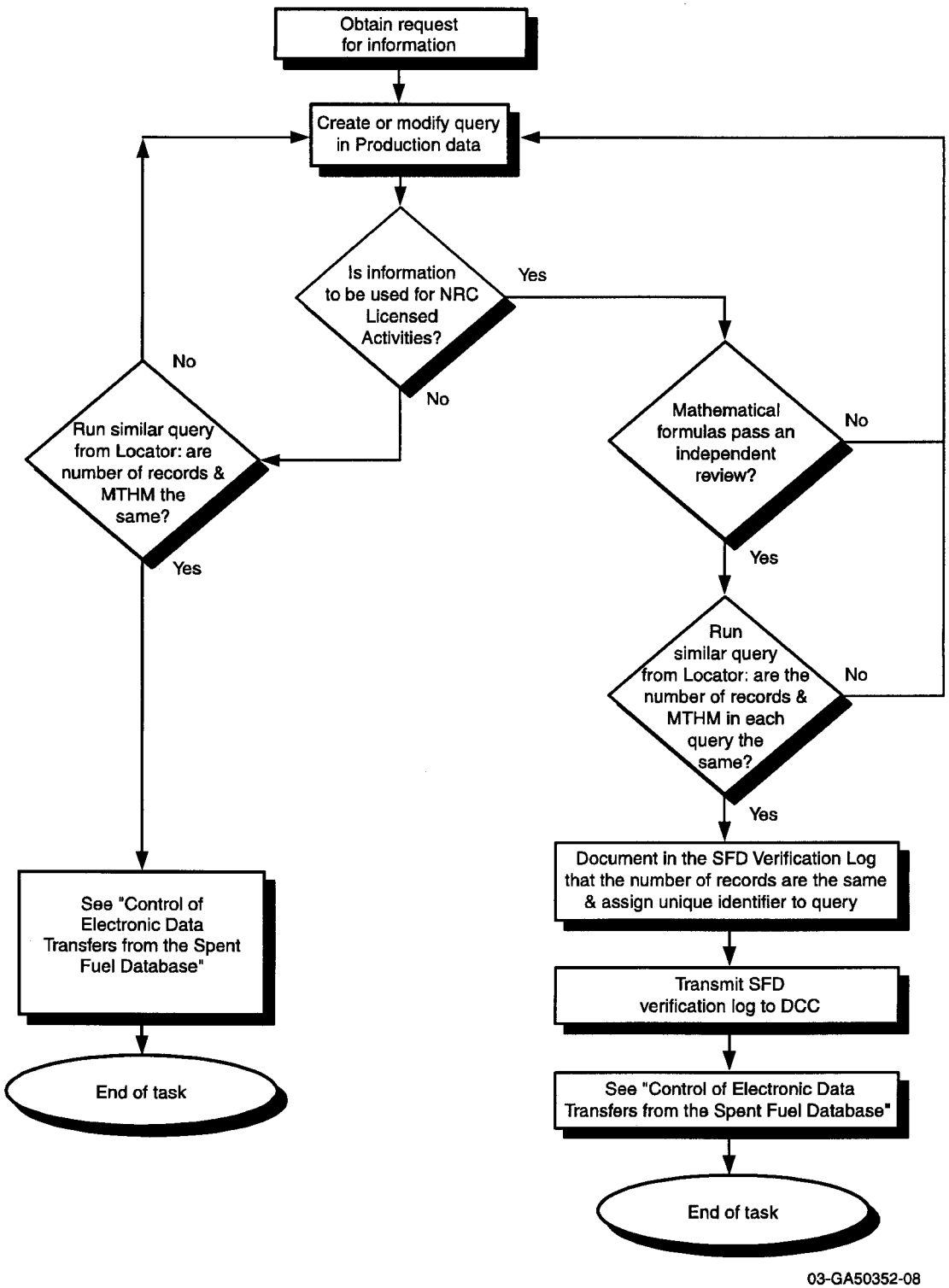
Core Software Change Control



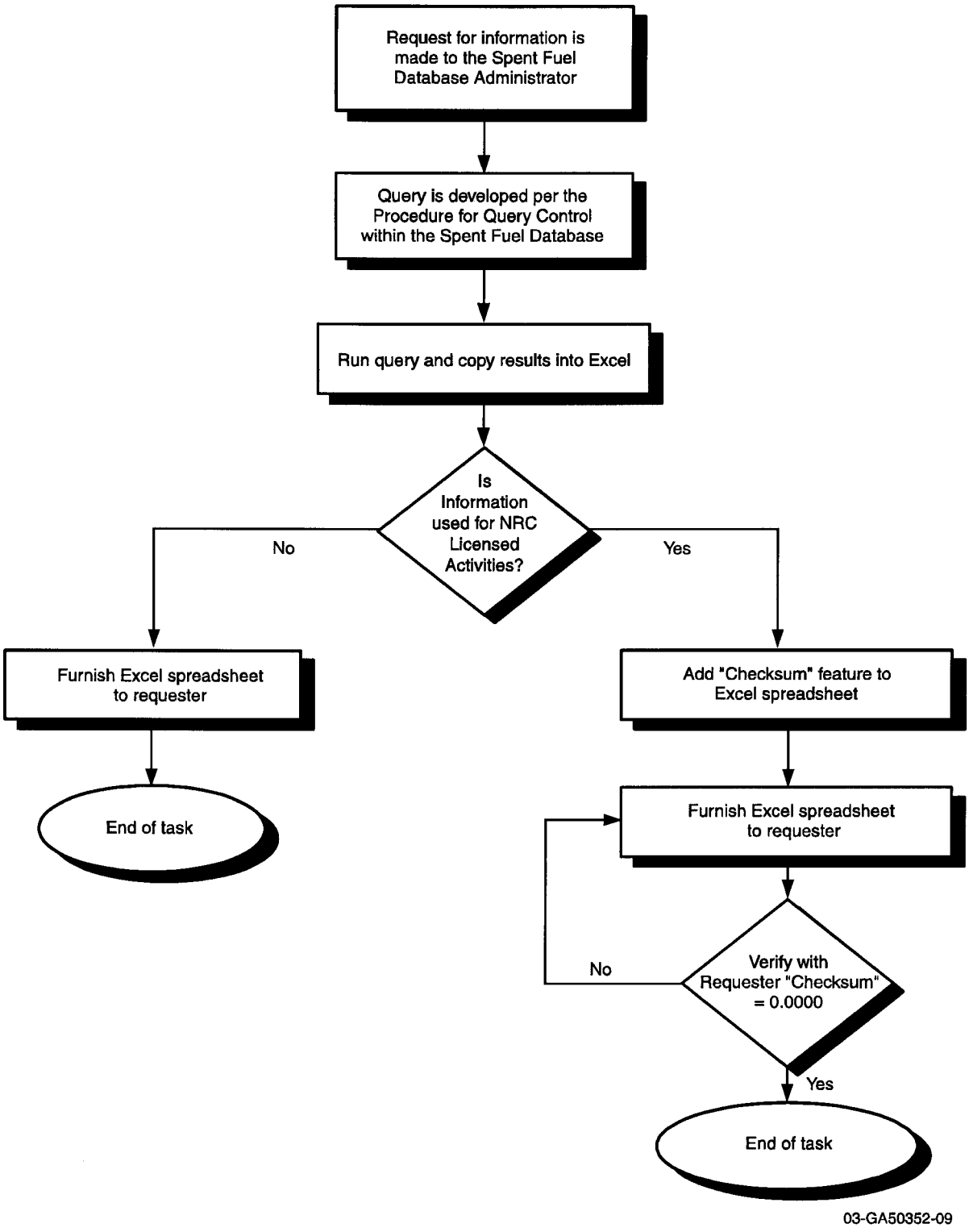
Updating the SFD Information



Developing Responses to Questions Using Queries within the SFD



Control of Electronic Information



Attachment A

Spent Nuclear Database Verification Log—Template

Date: _____ **Spent Fuel Database Version Number** _____

Query Name _____

The query listed above has been checked to be certain all required data fields are included and the formulas used to produce desired data have been checked and are written correctly _____

PSO Technical Staff (printed name and signature)/ Date

Results from Query from the raw data in the Microsoft Access Production data

Value for MTHM _____ (to 4 digits to the right of the decimal)

Total number of records in query _____ (whole number)

Results from Query from the Locator in the normal interface of the Spent Fuel Database

Value for MTHM _____ (to 4 digits to the right of the decimal)

Total number of records in query _____ (whole number)

PSO Technical Staff _____

(printed name and signature)/ Date

cc: _____ (requester)

NSNFP Document Control File Location: 1360.2